APPLICATION REVIEW

AND DETERMINATION OF PRELIMINARY COMPLIANCE

FOR:

Nevada Power
Reid Gardner Station

Clark County, Nevada

BY

STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR POLLUTION CONTROL

ROB BAMFORD
ENVIRONMENTAL MANAGEMENT SPECIALIST

JANUARY 1, 2004

1.0 INTRODUCTION

Nevada Power has submitted an application for the transfer of their State-issued Air Quality Operating permit #AP4911-0400 to a USEPA Title V permit. The NDEP-BAPC has air pollution regulatory authority over fossil fuel-fired steam boilers in Nevada that produce electrical power for sale. Certain non-boiler related activities at the Reid Gardner Station are permitted by the Clark County Department of Air Quality Management (CC-DAQM) since the facility is located in Clark County. This proposed Title V Permit review will address only those items regulated by NDEP-BAPC.

Issuance of a Class I Air Quality Operating Permit for Reid Gardner is in response to a Title V Permit Application that BAPC received on January 3, 1996 and deemed complete on January 26, 1996. As NDEP-BAPC's Part 70 Program regulations and structure began to develop after that date, subsequent discussions between NDEP-BAPC and NPC representatives indicated that an update of the original Title V application would be beneficial. To address this, NPC amended their initial Title V application. NDEP-BAPC received the amended application binder on July 29, 1999. A final amended application binder was received July 29, 2003.

The equipment is located within Clark County, Nevada approximately one mile southwest of the city of Moapa, Nevada and approximately 50 miles north of the city of Las Vegas. The Standard Industrial Classification (SIC) number for the process is 4911 (electricity production). The project consists of (4) coal-fired boilers, (4) cooling towers and the associated coal processing systems, lime systems, soda-ash systems, fly-ash handling systems and distillate oil systems.

The facility is located in basin HA 218, in the California Wash. The California Wash is currently designated as unclassifiable and/or attainment for all criteria air pollutants. However, a short distance form Basin HA218 is Basin HA212, the Las Vegas Valley that is in non-attainment for CO and PM_{10}.
Current emission estimates indicate that the Reid Gardner plant is a major stationary source under the permitting regulations of 40 CFR 70.2. The facility triggered the basin for Prevention of Significant Deterioration (PSD) for PM_{10}, NO_x and SO_2 and provided a PSD application May 21, 1979. A PSD permit was issued by USEPA January 3, 1980. The facility began operation in 1965 with boiler Unit #1, boiler Unit #2 in 1968 and boiler Unit #3 in 1976. PSD was triggered for the addition of a fourth coal-fired boiler (Unit #4) constructed in 1983.

The purpose of this review is to transfer the current State-issued permits to a Title V Air Quality Operating permit. As such, this review focuses primarily on the current permit limits for each emission unit and operating scenario. This review also focuses on the inclusion of New Source Performance Standards (NSPS) requirements. No new determinations are made in this permit action as no emission limits or facility operations are being changed. All previous limits and operating conditions are being transferred into this proposed Title V permit.

2.0 DESCRIPTION OF PROCESSES

2.1 OVERVIEW

The project consists of (4) coal-fired external combustion boilers that serve to produce electricity for sale for various locations in Nevada. Units #1-3 are similar in design and output and share support processes. Unit #4 is a larger, newer unit and has its own support systems separate from those of units #1-3.

No. 2 distillate oil is used to start the units and to assist in flame stabilization while burning coal. The combustion generated from No. 2 distillate fuel oil alone cannot generate enough steam pressure to run the turbines. The intent when burning distillate fuel oil is to stabilize combustion whenever there is a batch of low BTU coal, wet coal or during load changes. Historical data show a maximum annual heat input from No. 2 distillate fuel oil as 2% with coal being 98%. Therefore, each boiler has two operating scenarios: a "coal only" scenario and a "coal with No. 2 distillate oil" scenario. The facility may combust only bituminous or sub-bituminous coal types. The facility is a base-load facility and requests that each boiler be permitted to operate 8,760 hours per year.

Table 2.1 Boiler Overview

Unit	Manufactured	Manufacturer / Model	Annual Op. Hours	MMBtu/hr	MW (maximum)
#1	1965	Foster-Wheeler External wall-fired (FFFSG)	8,760	1,215	110
#2	1968	Foster-Wheeler External wall-fired (FFFSG)	8,760	1,215	110
#3	1976	Foster-Wheeler External wall-fired (FFFSG)	8,760	1,237	110
#4	1983	Foster-Wheeler External wall-fired (FFFSG)	8,760	2,956	295

2.2 COAL HANDLING

Coal is shipped by rail from mines located throughout Utah and Wyoming. The coal received is classified as Western bituminous or sub-bituminous. Rail cars are unloaded onsite through bottom dumps through a grate into dump hoppers located beneath coal yard ground level. According to the permit application, the area of the coal storage piles is approximately 20 acres. Fugitive emissions from the coal storage yard are regulated in the Surface Area Disturbance conditions of the Operating Permit. Although this facility is located in Clark County, BAPC has historically regulated and permitted those surface area disturbances at Reid Gardner that are directly related to boiler operations.

In the Title V issuance process for the Sierra Pacific Power Company Valmy facility, EPA region IX officials determined that 40 CFR 60, NSPS Subpart Y *Standards of Performance for Coal Preparation Plants* requirements would apply to affected coal processing equipment at Valmy. To be consistent in this permitting approach, NDEP-BAPC will structure similar coal handling systems at Reid Gardner as being subject tot NSPS subpart Y provided they meet the criteria of processing greater than 200 tons of coal per day and were constructed/modified after the applicability date of October 24, 1974.

To check on the construction/modification dates for the coal equipment, NDEP-BAPC found that the Title V application forms listed either "unknown" or "blank" for both the equipment manufacturer and purchase dates for the coal handling equipment. However, by checking the 1991 application forms submitted, NPC indicated purchase dates of 1974 and 1982 for Unit #3 and Unit #4 coal conveying equipment, respectively. This indicates that before construction of Unit #3 in 1976, and once again in 1983 for Unit #4, coal-handling

equipment was both purchased and installed. Thus, since Unit #3 and Unit #4 coal handling equipment have been added and modified after the Subpart applicability date, NDEP-BAPC will incorporate appropriate NSPS requirements for this system.

Since this is the first operating permit for Reid Gardner that specifies that the coal handling system be subject to the provisions of Subpart Y, the permit language will stipulate that an initial Method 9 opacity determination (NSPS IOCD) be performed and recorded to determine compliance with the NSPS opacity limit of 20%.

The coal is then distributed via enclosed conveyors to a stockpile for Units #1-3 or to another stockpile for Unit #4. From the stockpiles, the coal is bulldozed into feed hoppers at ground level to be fed into pre-combustion processing operations. The pre-combustion processes use roller mills to grind the coal into a fine powder stored in a series of silos that provide a continuous supply of coal fuel to the boilers. Units #1-3 each have a (2) coal mill grinders built into the boiler units and Unit #4 has four mill grinders built into its unit. The coal mill grinders and their potential fugitive emissions are under pressure and blown into the boiler combustion chambers.

Boiler Units #1-3 utilize a "tripper room" to fill the coal fuel silos and to keep fuel "in the ready." The tripper system consists of two rail-car style tracks with twelve coal fuel silos beneath the tracks. Each track has a "filler" rail car that moves up and down the tracks distributing coal fuel to the silos below. Of the twelve silos beneath the tracks, four are used per boiler.

Unit #4 utilizes a "cascade room" to keep its eight fuel silos full. The cascade system utilizes two sets of four silos. Using a "top-down" approach, a series of small conveyors and flop-gates fill upper level silos that feed to lower level silos that then feed the final fuel silos thus maintaining a constant supply of fuel. Both fuel-silo systems are located in fully enclosed building structures.

Units #1-3 have twelve coal silos that were purchased in 1975, according to the 1991 application forms. The application also indicates that the eight coal silos for Unit #4 were purchased in 1981. Therefore, all twenty silos in this system are subject to NSPS Subpart Y provisions, since they are coal storage systems constructed after October 24, 1974. Since this is the first operating permit for Reid Gardner that specifies that the coal silos be subject to the provisions of Subpart Y, the permit language will stipulate that an initial Method 9 opacity determination (NSPS IOCD) be performed and recorded to determine compliance with the NSPS opacity limit of 20%.

Fabric filter collectors installed on each silo will control particulate emissions resulting from silo loading. During the unloading of a silo in which coal is transferred to a Unit's coal mill, enclosures have been installed at the transfer points.

The pulverized coal from the fuel silos is then mixed with air and injected into the boilers for combustion. The heat of the combustion process produces steam that is piped to a turbine generator where the thermal energy is converted to mechanical energy turning a turbine coupled to an electrical generator. The exhaust control technologies for units #1-3 are cyclonic ash separation and wet scrubbing, while unit #4 utilizes a baghouse and wet absorption. All four units utilize low NO_x burners and over-fired air.

Water sprays are used to control fugitive emissions at coal unloading stations and conveyor points. Conveyors are completely enclosed in metal housings with rubber skirting at various transfer points. Coal storage silos and coal dust storage silos utilize fabric filter baghouses. Reid Gardner has expressed concern about being required to water spray coal for dust suppression when the coal arrives wet already or in freezing temperatures. The facility does not have thermal driers or warm storage to dry wet coal. Excessively wet coal yields inefficient combustion and may "gum-up" conveyors and other equipment. Historically, Las Vegas temperature records show only 6-8 freeze events annually.

Each boiler unit had coal-sampling requirements in their previous permits that have been transferred to the new Title V permit. The requirements dictate a coal sampling of the coal prior to entering each boiler. Sampling is conducted for moisture, ash, sulfur content and gross calorific value. These coal analyses are to be performed weekly and recorded. A coal mass measurement device with a Continuous Data Collection System is required to continuously record the amount of coal combusted in each boiler.

According to the 1991 application forms, three coal crushers and screen were purchased in 1967 and shortly thereafter, installed. This installation date would predate the NSPS applicability date of October 24, 1974 for coal processes. The equipment was to be used as backup if a boiler's coal mill systems failed. However, during an onsite tour of the facility in December 2003, I was advised that the equipment had been physically disconnected and had not been used "in 27 years" according to one plant operations manager. This crusher and screen system are in the 1991 application as "emergency use" equipment requesting only 100 hours per year operation.

2.3 BOILER UNITS #1-3

Unit #1 is a Foster Wheeler dry bottom, wall-fired steam boiler manufactured in 1963 and put into operation in April 1965. The unit combusts either bituminous or sub-bituminous coal and has a maximum input heat rating of 1,215 MMBtu/hr. According to the NPC application and existing permit conditions, no major modifications to Unit #1 have been made since startup. Unit #1 pre-dates NSPS applicability and operates 8,760 hours per year.

Unit #2 is a Foster Wheeler dry bottom, wall-fired steam boiler manufactured in 1965 and put into operation in July 1968. The unit combusts either bituminous or sub-bituminous coal and has a maximum input heat rating of 1,215 MMBtu/hr. According to the NPC application and existing permit conditions, no major modifications to Unit #2 have been made since startup. Unit #2 pre-dates NSPS applicability and operates 8,760 hours per year.

Unit #3 is a Foster Wheeler dry bottom, wall-fired steam boiler manufactured in 1976 and put into operation in July 1976. The unit combusts either bituminous or sub-bituminous coal and has a maximum input heat rating of 1,237 MMBtu/hr. According to the NPC application and existing permit conditions, no major modifications to Unit #3 have been made since startup. Based on its construction and startup date, Unit #3 is subject to the NSPS provisions of 40 CFR Part 60 Subpart D, *Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971*. Unit #3 operates 8,760 hours per year.

For units #1-3, by-products of the combustion processes, flue gases and fly ash, are separated by nuva collectors. The nuva collectors are (cyclonic) separators under positive pressure that pull the fly ash from the

flue gases and deposit the ash into mechanical fly ash collectors. The fly ash and bottom ash (ash too heavy to be entrained), are collected and trucked to a nearby landfill. The flue gases then continue to scrubbers. The scrubbers remove pollutants from the flue gases by flowing the gases upward through a rain of soda ash and water solution. The soda ash solution removes SO_2 and particulate matter by droplet impingement with 75% SO_2 removal efficiency. This mixture is re-circulated until saturated. At saturation it is stored in tanks and then pumped to wastewater ponds. The cleaned flue gas is then vented out of the scrubber and into the Unit exhaust stack. The Unit #1-3 exhaust stacks are 200, 240 and 270 feet tall respectively. Each stack possess a discrete continuous emission monitoring system to measure SO_2, NO_x, O_2, CO_2, volumetric flow and stack opacity.

2.4 BOILER UNIT #4

Unit #4 is a Foster Wheeler dry bottom, wall-fired steam boiler combusting either bituminous or sub-bituminous coal at a design heat input rate of 2,956 MMBtu/hr. Unit #4 was manufactured in 1983 and placed into operation July 1983. Based on its construction and startup date, Unit #4 is subject to the NSPS provisions of 40 CFR Part 60 Subpart Da, *Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978*. Unit #4 is permitted to operate 8,760 hours per year at its design heat capacity.

For unit #4 the hot flue gas and fly ash pass into a baghouse to remove 99% of the entrained particulate matter. The ash collected in the baghouse is then dropped into hoppers where it is pneumatically transported to the fly ash silo and then trucked to a landfill. Upon exiting the baghouse, the filtered flue gas stream is sent through a wet absorber system employing sodium carbonate for 85% SO_2 removal efficiency and then is exhausted through a 500-foot tall exhaust stack. The stack possess a discrete continuous emission monitoring system to measure SO_2, NO_x, O_2, CO_2, volumetric flow and stack opacity.

2.5 COOLING WATER AND TREATMENT SYSTEMS

Fresh water is brought into the plant from either the Muddy River or a water well field and then stored in ponds for cooling tower make-up water. There are four cooling towers; one per boiler system. Unit #4 water is transferred from the ponds to a water softening system to remove scaling minerals and then it is stored in a treated water reservoir prior to its use. When the total dissolved solids in a cooling tower water elevates to the point of precipitation, it is decanted to the Lime Softening Water Treatment System to remove calcium carbonate and then decanted to on-site evaporation ponds.

Particulate emissions from the Unit #1-4 cooling towers are estimated by calculating the Total Dissolved Solids (TDS) from the cooling tower drift losses. Particulate matter emissions are calculated using emission factors listed in AP-42 Section 13.4 (Wet Cooling Towers). A representative TDS content of 8,500 ppm in the Reid Gardner cooling tower basins and the manufacturer's stated drift loss of 0.0023% have been used to calculate the potential emissions. To meet the 0.0023% drift loss criteria, each of the four cooling towers are equipped with mist eliminators. The use of chromium-based chemicals in not permitted, so there are no HAP emissions in the TDS particulate matter.

Table 2.2 Cooling Tower Overview

Unit	Manufactured*	Manufacturer / Model	Gal/min circulation rate	Annual Op. Hours
#1	1963	Marley Positive-Draft	63,800	8,760
#2	1965	Marley Positive-Draft	63,800	8,760
#3	1976	Marley Positive-Draft	63,800	8,760
#4	1983	Marley Positive-Draft	131,800	8,760

*Manufactured date assumed to coincide with deployment of boiler for this review. Permit application data was invalid and proper dates to be supplied by Reid Gardner facility.

2.6 FLY ASH SYSTEMS

Fly ash from Units #1-3 is stored in a common silo with a backup silo (spare) being available. Unit #4 has its own fly ash silo with a backup silo (spare) also available. Fabric filter collectors installed on each silo control particulate emissions during silo filling. During fly ash unloading, Unit #4 may utilize either (2) rotary unloaders or a telescopic unloader. The rotary unloaders saturate the ash for particulate control while the telescopic unloader utilizes a "pipe-within-a-pipe" negative pressure system. The inner pipe of the telescoping assembly pumps the fly ash into a haul truck and the outer pipe (that encases the inner pipe) utilizes negative pressure to suck any fugitive fly ash from the unloading process back into the fly ash silo.

2.7 FLUE GAS DESULFURIZATION (FGD) SYSTEMS

Six storage tanks/silos are permitted and store lime for Units #4 water treatment system and soda ash for the Units #1-3 FGD scrubbers. During loading operations, the Unit #1-3 and Unit #4 soda ash tank emissions are controlled by a venture wet scrubber installed on each tank. The balances of the four silos in this system are each controlled by fabric filter collectors. The discharge point for each tank or silo is to a wet (saturated) process via an enclosure. Therefore, negligible emissions are expected during tank/silo discharge.

2.8 FUEL STORAGE AND TRANSFER SYSTEMS

Reid Gardner Station possesses one 860,000-gallon petroleum liquid tank (in-service 1964) that stores No. 2 distillate fuel oil. This tank is used to provide fuel to the boilers to facilitate startup and flame stabilization. The storage tank was constructed in June 1964. Because 40 CFR Part 60, subpart K is applicable to storage tanks that were constructed after June 11, 1973, the tank is not affected. Also, storage tanks containing No. 2 distillate fuel oil and No. 6 residual fuel oil are not subject to K and Ka, even if they were constructed after the applicability date. But because the storage tank does have a capacity greater than 40,000 gallons it is not an insignificant permit item and therefore it is not exempt from requirements according to NAC 445B.288 (d) and it will be included in the facility permit with a minimal amount of monitoring and record keeping.

The facility also maintains two 10,000-gallon above-ground diesel storage tanks located in the coal yards and two 6,000 gallon underground diesel tanks near the maintenance shop. These smaller tanks serve as fueling sources for the coal yard bulldozers and for motor vehicle refueling.

2.9 INSIGNIFICANT ACTIVITIES

Reid Gardner Station maintains three emergency diesel fueled electrical generating sets to provide emergency power for Units #1-4 and a fire pump engine. These sets are non-dispatchable and used for emergency electrical power only. The PTE of these units has been calculated using AP-42 emission factors at an annual

maximum 500 hours per year. In practice, the operation of emergency generators at Reid Gardner is generally limited to preventative maintenance testing, so a 500-hour/year schedule is a worst-case scenario.

In a communication with Reid Gardner on December 30, 2003, the facility provided NDEP-BAPC with documentation detailing all of the facility's chemical storage tanks. The data was reviewed by NDEP-BAPC and it was determined that no USEPA defined Hazardous Air Pollutants (HAPs) or Volatile Organic Compounds (VOCs) were being stored.

3.0 APPLICABLE REGULATION

Applicable requirements are those regulatory requirements that apply to a stationary source or to emission units contained within the stationary source. Certain activities at the Reid Gardner station are regulated and/or permitted by the Clark County Health District, Department of Air Quality Management. The County-level regulations will apply to conditions outside the scope of this Class I operating permit and will not be discussed in this technical review.

In Nevada's program, the regulations governing the emissions of air pollutants from which the applicable requirements originate are derived from four categories of regulations. These four categories consist of the requirements contained in the Nevada Revised Statutes (NRS), the Nevada Administrative Code (NAC), the Approved State Implementation Plan (ASIP) and the Code of Federal Regulations (CFR, contained within various Parts within Title 40).

3.1 STATE STATUTE AND ADMINISTRATIVE CODE

The Nevada Revised Statutes (NRS) and the Nevada Administrative Code (NAC) require that where state regulations are more stringent in comparison to Federal regulations, the State regulations are applicable. The Reid Gardner Station will be subject to NAC and NRS.

3.1.1 NEVADA REVISED STATUTES

The Nevada Revised Statutes (NRS) are the statutory authority for the adoption and implementation of administrative regulations. Reid Gardner is subject to NRS stipulated in NRS 445B.100 through 445B.640, which refer to the control of air pollution. The NRS specifies the State Environmental Commission is the governing body given the power to adopt administrative regulations. Because the NRS is the enabling statutory authority, very few specific requirements are contained in the statutes. Rather, the NRS provides broad authority for the adoption and implementation of air pollution regulations.

3.1.2 NEVADA ADMINISTRATIVE CODE

The Nevada Administrative Code (NAC) are administrative regulations that contain specific requirements relating to the control of air pollution. Reid Gardner is also subject to the NAC 445B.001 through 445B.395, inclusive that govern the control of air pollution from regulated facilities in Nevada. The State Environmental Commission adopts these regulations. The NAC requires that, where State regulations are more stringent in comparison to Federal regulations that the State regulations are applicable.

Key regulations in the NAC applicable to Reid Gardner's operations include: 445B.252 (testing and sampling); 445B.256-257 (monitoring); 445B.288 (exemptions for certain insignificant activities); 445B.354 (maximum opacity of emissions); 445B.355(6) (allowance for boiler lancing or soot blowing); 445B.373 (maximum emissions of sulfur from fuel-burning equipment) and 445B.376-377 (specific State requirement for sulfur emissions from Reid Gardner Units #1-4).

NDEP/BAPC has performed a review of the NAC standards for emission units at the Reid Gardner facility and determined that the requested operating parameters do not exceed the NAC maximum allowable emissions. The new Title V permit will contain emission limits referenced to the NACs.

3.2 NEVADA APPLICABLE SIP (ASIP)

The Applicable State Implementation Plan (ASIP) is a document that is prepared by a State or local air regulatory agency and required to be submitted to the USEPA for approval. Title I of the Clean Air Act is the statutory authority for the USEPA regulations that require a State to submit a SIP. The contents of the SIP are intended to show how a State, through the implementation and enforcement of the regulations contained in the SIP, will either show attainment of the National Ambient Air Quality Standards (NAAQS) will be achieved or how a State will continue to maintain compliance with the NAAQS. Nevada's most recent ASIP that was approved by USEPA is based on State regulations codified in 1982.

In general, the regulations contained in the ASIP closely parallel the current NAC regulations. However, because the ASIP is based on older air quality regulations (at this time), compliance with all of the current NAC regulatory requirements does not necessarily ensure compliance with all of the current ASIP regulatory requirements. All of the equipment considered in this application must meet, at minimum, the standards set forth in the ASIP. Specifically, the emission standards contained in ASIP 445.731 for particulate matter, ASIP article 8.2 for sulfur emissions, SIP 445.721 for opacity and 12.2 for the ambient air quality standards must not be exceeded.

Reid Gardner is subject to the provisions of the Nevada ASIP. Specifically the ASIP includes applicable requirements of maximum allowable opacity, PM and Sulfur. NDEP/BAPC performed the ASIP maximum allowable calculations for emissions units at the Reid Gardner facility and determined that the requested operating parameters do not exceed the ASIP maximum allowable emissions. The new Title V permit will contain emission limits referenced to the ASIP.

3.3 CODE OF FEDERAL REGULATIONS

The Code of Federal Regulations (CFR) are regulations adopted by the USEPA and published in the Federal Register pursuant to the authority granted by Congress in the Clean Air Act. The CFR addresses multiple topics, including but not limited to: permitting requirements, performance standards, testing methods and monitoring requirements.

3.3.1 NEW SOURCE PERFORMANCE STANDARDS

The Reid Gardner facility is subject to performance standards under the New Source Performance Standards under 40 CFR Part 60.

NSPS Overview.

System	Applicability
#1	Not applicable based on construction date of 1963.
#2	Not applicable based on construction date of 1965.
#3	Applicable. Subpart D boiler. *Standards of Performance for Fossil-fuel-fired steam generators for which construction is commenced after August 17,1971.*
#4	Applicable. Subpart Da boiler. *Standards of Performance for Electric Utility Steam Generating units for which construction is commenced after September 18, 1978.*
Coal unloading and conveying systems	Applicable to Unit #3 and Unit #4 equipment. Subpart Y. *Standards of Performance for Coal Preparation Plants* . (commencing construction or modification after October 24, 1974)
Coal Silos	Applicable to Unit #1-4 equipment. Subpart Y. *Standards of Performance for Coal Preparation Plants* . (commencing construction or modification after October 24, 1974)
Coal crushing and screening station	Not applicable, constructed prior to applicability date of October 24, 1974 for Subpart Y.
No. 2 Distillate fuel oil storage tank	Not applicable due to installation date of 1964.
Soda ash, fly ash and lime tanks/silos	Not applicable; no NSPS categories.

No other emission units, except those previously mentioned in the table above are currently subject to NSPS requirements at Reid Gardner.

3.3.2 PREVENTION OF SIGNIFICANT DETERIORATION REGULATIONS (PSD)

40 CFR Part 52.21 specifies that PSD review is required for any new major stationary source or any major modification. A major source is defined as any pollutant emitting activities, which belong to the same two-digit Source Industry Classification and:

1. emits 100 tons/yr or more of a regulated air contaminant as one of the listed categories of sources listed in 40 CFR 52.21; or
2. emits 250 tons/yr or more of a regulated air contaminant and belong to any other category source.

The facility is a fossil fuel-fired steam electric plant with more than 250 MMBtu/hr heat input and has a total potential to emit of regulated pollutants that exceeds 100 tons/year. Therefore, the facility is a PSD source. Any modification to the facility that increases the emissions above the applicable significant emission threshold will require a new PSD/NSR review of the source. It should be noted that the baseline date for the hydrographic area was triggered May 21, 1979. As such, additional emissions from this facility will consume

increment. A PSD review is not required for this permit action as there is no change in emission limits being performed.

Historically, the facility has discussed the potential for burning No. 2 distillate fuel oil and/or natural gas in each boiler as alternative operating scenarios. To address these alternative operating scenarios, BAPC sent a letter to NPC on October 6, 2000 indicating that any such action is a modification subject to PSD review. BAPC's position is based on a comparison of NPC's inventory that compares the Potential to Emit (PTE) for coal, gas and oil. NPC's PTE shows that for CO there would be a significant increase of more than 100 TPY of CO emissions by switching from coal to either oil or gas. In addition, retrofit of the existing coal burners to burn either 100% oil or gas constitutes a modification of a PSD source. BAPC clarified that for both historical and current permit conditions that Reid Gardner Units #1-4 are allowed to combust only sub-bituminous or bituminous coal for fuel.

3.3.3 NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

The federal National Emission Standards for Hazardous Air Pollutants (NESHAP) provisions are contained in 40 CFR Parts 61 and 63. The Reid Gardner Title V permit application and NDEP/BAPC HAPs calculations dictate that the facility is not major for HAPs and subject to 40 CFR parts 61 and 63. However, the USEPA is currently studying the levels and impacts of mercury emissions from large coal combustion sources in the U.S. Until new NESHAP requirements for coal burning boilers are mandated by the USEPA, there are no underlying HAP or NESHAP requirement conditions for the proposed Title V operating permit.

3.3.4 COMPLIANCE ASSURANCE MONITORING

The USEPA has promulgated requirements for sources to provide detailed monitoring plans that will ensure compliance with all applicable requirements. These monitoring requirements are contained in 40 CFR Part 64. Section 64.2 specifies that these monitoring requirements apply to a "pollutant specific emission unit at a major source" if all of the following are satisfied:

- The unit is subject to an emission limit or standard;
- The unit uses a control device to achieve compliance with any such emission limitation or standard; and
- The unit has the potential pre-control device (uncontrolled) emission equal to or greater than 100% of the amount, in tons per year, required for a source to be classified as a major source.
- Part 64.5 requirements specify that a CAM plan be submitted by a facility if it has not submitted a Part 70 application by April 20, 1998, or that the Part 70 application was not deemed complete by that date.

According to permit records, the initial Reid Gardner Title V application was received by NDEP-BAPC on January 3, 1996. Therefore, the current permit action does not require a CAM plan. However, when Reid Gardner renews its permit or requests a significant revision, a CAM plan will be required.

3.3.3 ACID RAIN PROGRAM

The Clean Air Act Amendments of 1990 (Title V) established a requirement to reduce the emissions of pollutants contributing to acid rain (SO_2 and NO_x). The USEPA is responsible for developing regulations and implementing the requirements of the acid rain provisions of the Clean Air Act. The four boilers at the

Reid Gardner facility are applicable to the regulations and allowances of Phase II of the Acid Rain Program. The requirements are incorporated into the new Title V permit for reference.

3.3.4 ACCIDENTAL RELEASE PROGRAM

The Chemical Accident Prevention Provisions are contained in 40 CFR, Part 68. The Reid Gardner Station is required to comply with the Chemical Accident Prevention Provisions, if the facility stores any chemicals regulated by 40 CFR, Part 68, in quantities greater than their respective threshold quantity.

3.3.5 PROTECTION OF STRATOSPHERIC OZONE

The Protection of Stratospheric Ozone Provisions are contained in 40 CFR, Part 82. The Reid Gardner Station is required to comply with 40 CFR, Part 82, if the facility operates any equipment or store any products regulated by 40 CFR, Part 82. The permit application states that 40 CFR Part 82 requirements are not applicable because the facility does not service its own air conditioning equipment or store any regulated products.

3.3.6 EMERGENCY EPISODES PLAN

NAC 445B.230.1 requires a plan for the reduction of emissions from any facility that is able to cause or permit the emission of 100 tons or more per year of a regulated pollutant from a stationary source. The facility is required to prepare and submit to NDEP-BAPC a plan for reducing or eliminating emissions in accordance with the episode stages of alert, warning and emergency as defined in the air quality plan for the State of Nevada.

On February 11, 2000, NPC submitted a revised emergency episodes plan (EEP) for the facilities owned and operated by NPC in Clark County, Nevada, including Reid Gardner. The plan was determined acceptable by NDEP-BAPC.

3.4 DUST CONTROL PLAN

The NDEP-BAPC requires that permit holders who disturb 20 acres or more of topsoil must submit a dust control plan as one of the necessary measures to prevent particulate matter from becoming airborne (ASIP 445.734). The dust control plan is a written plan signed by a facility's responsible official that outlines the methods a facility will use to minimize fugitive dust.

The Reid Gardner facility disturbs more than 20 acres of topsoil through activities such as unpaved roads and coal storage piles. The topsoil disturbance activities are directly related to the boiler systems and therefore fall under the jurisdiction of NDEP-BAPC. The application does not contain a dust control plan, but one will be required within 60 days of the issuance of the Title V permit.

In addition, the previously issued PSD permits for boiler Units #3 and #4 outline specific dust control requirements that will be carried into the Title V permit. These include :

- the main road to the facility be paved;
- roads within the facility be graveled and treated with surfactant;
- coal conveyors be completely enclosed; and
- coal stock piles be compacted and treated with chemical dust suppressant as required.

4.0 EMISSIONS INVENTORY

Boiler Units #1-4 Allowables Summary													
System	State only requirement			Fed SIP		PSD Permit				Acid Rain		NSPS	
	pm10 (lbs/MMBtu)	Sulfur (lbs/hr)	Sulfur (lb/MMBtu)	pm (lb/MMBtu)	Sulfur (lb/hr)	S02 (lb/MMBtu)	PM (lb/MMBtu)	NO2 (lb/MMBtu) firing sb coal	NO2 (lb/MMBtu) firing b coal	SO2 (TPY)	Nox (MMBtu)	PM (MMBtu)	SO2 (lb/MMBtu)
1A	0.20	729.00	0.28	0.20	729.00	0.55				2,172.00	0.46		
1B	0.20	724.14	0.28	0.20	724.14	0.55				2,172.00	0.46		
2A	0.20	729.00	0.28	0.20	729.00	0.55				2,172.00	0.46		
2B	0.20	724.14	0.28	0.20	724.14	0.55				2,172.00	0.46		
3A	0.20	737.25	0.28	0.20	737.25	0.55				2,172.00	0.46	0.10	
3B	0.20	724.14	0.28	0.20	724.14	0.55				2,172.00	0.46	0.10	
4A	0.16	1,773.60	0.15	0.16	1,773.60	0.29	0.03	0.50	0.60	2,172.00	0.50	0.03	1.20
4B	0.16	1,761.80	0.15	0.16	1,761.80	0.29	0.03	0.50	0.60	2,172.00	0.50	0.03	

Requested Permit Limits and SIP and NAC Allowables					
		Application Requested Throughput	Application Requested Emissions		SIP 445.732 NAC 445B.22033 Allowables
SYSTEM		TPH	PPH	TPY	PPH
Cooling Tower 1 (GPM)	s2.005	63,800	50.5	225.5	119.24
Cooling Tower 2 (GPM)	s2.006	63,800	52.5	225.5	119.24
Cooling Tower 3 (GPM)	s2.007	63,800	52.5	225.5	119.93
Cooling Tower 4 (GPM)	s2.008	131,000	105.6	463.4	132.72
Coal train car unloading station	pf1.001	2500	37.1	50.6	90.06
Load Unit #4 coal convey	pf1.002	1800	0.2	0.02	85.44
Coal Storage Silos Units #1-3	s2.010	1650	0.2	0.1	84.25
	pf1.003	152.8			55.63
Coal Storage Silos Unit #4	s2.011	1400	0.2	0.1	82.02
	pf1.004	123.2			53.40
Coal Crushing and Screening	PF1.005	1250	0.7	0.04	80.51
	PF1.006	1250	0.7	0.04	80.51
	PF1.007	1250	0.7	0.04	80.51
	PF1.008	2500	2.1	0.1	90.06
Unit #1-3 fly ash	s2.012	8.5	0.6	4.4	17.20
	pf1.009	8.5			17.20
Unit #1-3 backup fly ash	s2.013	6	0.5	1.8	13.62
	pf1.010	35			44.39
Unit #4 fly ash	s2.014	11	0.3	1.7	20.44
	pf1.011	11			20.44
Unit #1-3 soda ash	s2.015	2.4	0.13	0.54	7.37
	pf1.012	2.4			7.37
FGD soda ash slurry tank	s2.016	2.05	0.11	0.49	6.63
	pf1.013	2.05			6.63
Unit #4 FGD lime storage silo	s2.017	0.29	0.008	0.03	1.79
	pf1.014	0.29			1.79
Unit #4 Water Treatment Soda ash silo	s2.018	0.91	0.02	0.06	3.85
	pf1.015	0.91			3.85
Unit #4 FGD backup quicklime	s2.019	0.69	0.0021	0.009	3.20
	pf1.016	0.69			3.20
Unit #4 FGD lime storage silo	s2.020	0.69	0.02	0.03	3.20
	pf1.017	0.69			3.20
For NAC & SIP					
When < 30 tph use:E=4.10*(P^0.67)					
When >30 tph use: E=55*(P^0.11) - 40					

5.0 AMBIENT AIR IMPACT

5.1 AIR DISPERSION MODELING

The facility is located in hydrographic area (HA) 218 and Reid Gardner is the facility that triggered the baseline data for PSD in this basin. The area is triggered for PM_{10}, NO_x and SO_2.

At the time in which major sources were first preparing and submitting their Title V applications in 1995-1996, the issue arose as to whether a new air quality analysis would be required for existing sources that did not request any modifications of their existing state-issued operating permits. At the time, NDEP-BAPC policy was that a new air quality analyses was not required for existing sources if no modifications were made. Therefore, the NPC was not required to submit an air quality analysis in 1996 since no modification of existing emission limits were requested. An air quality analysis will be required upon the renewal of this first Title V permit or for a significant modification.

Although an air quality analysis was not required, modeling was performed July 1995 at the time of the facility's Title V permit application submittal. Modeling was performed for all Units and for Unit #4 alone as a PSD source against available increment. The model method employed was the All Terrain Dispersion Model (ATDM) using ISCST2 and COMPLEX I algorithms. At the time of application these were the current State and EPA approved modeling tools for assessing sources located in complex terrain. Meteorological data for lower atmosphere was taken from the BMT meteorological tower 800 feet northwest of the plant site and upper atmosphere data was provided by the Desert Rock meteorological data set.

The results of the emission evaluation indicated that point and fugitive sources would not cause a violation of the National Ambient Air Quality Standards (NAAQS) or exceed the PSD increments. Point and area emissions were determined using stack performance data for each boiler unit. Fugitive emissions were estimated using calculations provided in AP-42 for coal handling, transfer points, conveying and coal storage piles.

The results determined that the fugitive dust from coal handling operations is the highest contributor to high particulate matter emissions. The findings determined a 1^{st} high 24-hour PM_{10} concentration of 95.11 μ/m^3 located 200 meters east of the plant boundary.

The facility will be required to perform a full air dispersion analysis again at its next permit renewal.

5.1 Model Results—Concentrations for All Sources

Pollutant / Avg. Time	Concentration (µ/m3)	NAAQS (µ/m3)
PM^{10}	95.11	150
24-hr		
Annual	20.03	50
SO_2	67.50	1,300
3-hour		
24-hour	19.10	260
Annual	2.80	60
NO_x	46.6	100
Annual		
CO	160.03	40,000
1-hour		
8-hour	65.60	10,000

5.2 Model Results—Concentrations for PSD Source "Unit #4."

Pollutant / Avg. Time	Concentration (µ/m3)	PSD Increment (µ/m3)
PM^{10}	0.90	37
24-hr		
Annual	0.14	19
SO_2	21.10	512
3-hour		
24-hour	7.10	91
Annual	1.10	20
NO_x	5.20	25
Annual		

5.2 AMBIENT AIR QUALITY REQUIREMENTS

State-issued permit No. 1930 for boiler Unit #4 contained PSD permit post-construction requirements mandating ambient and meteorological monitoring for the life of the operating unit. This requirement specified a 100-meter meteorological tower at the site. The tower was specified to record wind speed, wind direction, sigma theta and ambient temperature. In 1998 the 100-meter tower was replaced with a 10-meter tower. The 10-meter tower measures and records wind speed, wind direction, sigma theta and ambient temperature.

6.0 CONCLUSIONS / RECOMMENDATIONS

Based on the above review and supporting data and analyses, the Reid Gardner permit will not result in an exceedence of any applicable ambient air quality standards. As a result, I recommend that the conditions specified in the draft facility-wide operating permit be issued with all appropriate restrictions.

Rob Bamford	Date	Mehrdad Moghimi Supervisor, Permitting Branch	Date